

REMARKS

The present Amendment amends claims 2, 6, 10, 13, 17 and 21 and leaves claims 3-5, 7-9, 11, 12, 14-16, 18, 19, 22 and 23 unchanged.

Therefore, the present application has pending claims 2-19 and 21-23.

Claims 2-19 and 21-23 stand rejected under 35 USC §103(a) as being unpatentable over McCloghrie (U.S. Patent No. 6,035,105) in view of Applicants' alleged admitted prior art (articled entitled "Use of IPsec Protocol in IP Networks"). This rejection is traversed for the following reasons.

Applicants submit that the features of the present invention as now recited in claims 2-19 and 21-23 are not taught or suggested by McCloghrie or Applicants' alleged admitted prior art whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention as recited in the claims. Particularly, amendments were made to the claims to recite that the present invention is directed to a packet communication apparatus, system and method implemented in the packet communication apparatus.

According to the present invention the packet communication apparatus transmits a packet from a first network comprising a first Virtual Private Network (VPN) to a second network having a plurality of VPNs, wherein the packet includes a destination Internet Protocol (IP) address, and a first VPN identifier used to compose the first VPN in the first network.

The packet communication apparatus according to the present invention includes a packet generating unit which generates a second VPN identifier used to compose one of the plurality of VPNs in the second network based on the destination IP address and the first VPN identifier, and a transmitter which transmits a packet having added thereto said second VPN identifier.

Unique according to the present invention is that the first VPN is interconnected to the plurality of VPNs in the second network.

In the present invention by using the destination IP address and the first VPN identifier used to compose the first VPN in the first network, the second VPN identifier used to compose one of the plurality of second VPNs in the second network can be decided. This feature of the present invention allows for the packet communication apparatus to decide the second VPN identifier appropriately under a situation where the first VPN is interconnected to the plurality of VPNs. Without using this feature of the present invention, and under the situation where the first VPN is interconnected to the plurality of VPNs, the packet communication apparatus cannot decide the second VPN identifier and transmit the packet appropriately. The reasons are as follows.

If only the destination IP address is used to decide the second VPN identifier, the packet communication apparatus may transmit the data to the wrong destination because there can be an address collision between the destinations which are in different second VPNs relative to each other. Further, if only first VPN identifier, used to compose the first VPN, is used to decide the second VPN identifier, then the packet communication apparatus cannot decide the second VPN identifier and transmit the packet appropriately

because the packet communication apparatus cannot select one second VPN as a route of transmitting the packet among the plurality of second VPNs each of which is interconnected to the first VPN.

The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by McCloghrie or Applicants' alleged admitted prior art whether taken individually or in combination with each other as suggested by the Examiner.

McCloghrie discloses local area network (LAN) switch interworking between virtual local area networks (VLAN's) by using a VLAN management identifier (ID) (see McCloghrie's spec. col. 4 line 62 – col. 5 line 4).

McCloghrie discloses VLAN technology which identifies the outgoing tag by using only database 205, wherein the database includes only correspondence information of VLAN management IDs (specific Layer 2 information) of different VLANs (see McCloghrie's spec. col. 4 line 62 - col. 5 line 4).

Applicants' alleged admitted prior art simply teaches the composing of VPNs in an IP environment. Thus, Applicants' alleged admitted prior art simply discloses basic IP routing technology wherein each packet includes an IP address identifying a destination for the packet.

Thus, McCloghrie identifies the destination of data by using only Layer 2 or Layer 3 information, each of which is sufficient for each technology to transmit data. Furthermore, IP routing is a basic technology for IP network

interworking, and VLAN is an enhanced technology that allows a network to identify the destination of data without Layer 3 information (see McCloghrie's VLAN management IDs table 205).

Therefore, considering the objective and intent of these different technologies, there is neither motivation nor suggestion for combining basic IP technology and enhanced VLAN technology in the manner suggested by the Examiner in the Office Action. In fact, these different technologies teach away from each other and as such cannot be easily combined in the manner suggested by the Examiner in the Office Action.

The unique features of the present invention, for example, as recited in each of the claims 2, 6 and 10 are generating the second VPN identifier used to compose one of the VPNs in the second network based on a destination IP address and the first VPN identifier and the interconnecting of the first VPN to the plurality of VPNs in the second network.

Other unique features of the present invention include, for example, as recited in each of the claims 13, 17 and 21 generating the index based on a destination IP address and the first VPN identifier, generating the second VPN identifier used to compose one of the VPNs in the second network based on the index and interconnecting the first VPN to the plurality of VPNs in the second network.

By using the above described unique features of the present invention, packets can be transferred in the VPNs composed over the two networks in such a manner to be prevented from mixing with packets belonging to other traffic (see the present application on page 6 line 38-41).

Accordingly, the above described features of the present invention are not taught or suggested by any of the references of record whether taken individually or in combination with each other. Particularly, the above described features of the present invention as now more clearly recited in the claims are not taught or suggested by McCloghrie or Applicants' alleged admitted prior art whether taken individually or in combination with each other as suggested by the Examiner.

In the Office Action the Examiner alleges that McCloghrie teaches implementing his method in networks, utilizing different protocols as disclosed on 2:34-49.

Applicants do not agree with the Examiner's allegations. Applicants submit that if one of ordinary skill in the art at the time the invention was made applies the VLAN technology of McCloghrie to the IP environment of Applicants' alleged admitted prior art, then the resulting combination would not be the same technology as that of the present invention as recited in the claims.

According to Applicants' if one of ordinary skill in the art at the time the invention was made had tried to apply the VLAN technology described in McCloghrie to the IP environment of Applicants' alleged admitted prior art, then the output VLAN identifier would be decided based only on an IP address not decided based on an IP address and the first VPN identifier as in the present invention as clearly recited in the claims.

The reason that the above result would have occurred is that in ordinary IP environments, like Applicants' alleged admitted prior art, the layer 2 information including the second VLAN identifier is completely dependent

upon only the IP layer information. This is because in such conventional technology the network should comply with the OSI reference model in order to interwork seamlessly and without errors. In the OSI reference model, the lower level layer should be completely dependent upon only the higher level layer such that the lower level layer output information is decided based on only the higher level layer information. Thus, in ordinary IP environments, like Applicants' alleged admitted prior art, the second VLAN identifier (lower level layer) is based solely on the IP layer information (higher level layer) contrary to that of the present invention as recited in the claims.

In other words, as a matter of technological fact, the VLAN technology described in McCloghrie is concerned only to a VLAN network not to the IP environment, therefore the technology of McCloghrie as it is disclosed cannot be simply modified and applied to the IP environment taught by Applicants' alleged admitted prior art as alleged by the Examiner without a considerable amount of effort.

Thus, each of McCloghrie and Applicants' alleged admitted prior art fails to teach or suggest a header deciding unit which decides second header information used to compose one of the plurality of second VPNs in the second network based on the header information indicating a destination and the first header information used to compose the first VPN in the first network, and a transmitter which transmits data having added thereto the second header information used to compose one of the plurality of second VPNs in the second network as recited in the claims.

Further, each of McCloghrie and Applicants' alleged admitted prior art fails to teach or suggest that the first VPN is interconnected to the plurality of second VPNs as recited in the claims.

Therefore, each of McCloghrie and Applicants' alleged admitted prior art fails to teach or suggest the features of the present invention as now more clearly recited in the claims and as such does not render obvious the claimed invention when combined with each other. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 2-19 and 21-23 is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 2-19 and 21-23.

In view of the foregoing amendments and remarks, applicants submit that claims 2-19 and 21-23 are in condition for allowance. Accordingly, early allowance of claims 2-19 and 21-23 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (501.37526CX1).

Respectfully submitted,
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